

**URBAN DEVELOPMENT DIRECTORATE
MINISTRY OF WORKS
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH.**

**LANDUSE PLAN
NACHOLE UPAZILA SHAHAR
NAWABGANJ ZILA**

1988

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Chapter

1

Introduction

This is the final report (Report-IV) of the Nachole upazila shahar landuse plan and it has been prepared and submitted as per provision of the agreement signed between the HOQ ASSOCIATES and THE URBAN DEVELOPMENT DIRECTORATE. This report gives description of the present socio-economic and physical condition of the study area and forecasts possible future development of the upazila shahar.

1.1 Background of the Project

Upazila system may be termed as a milestone in the administrative reorganization in Bangladesh which is expected to have far reaching impact in development of the upazila and its environs. Since headquarter of upazila is the focal point from where all the development activities are initiated and thus the new system will play a great role in this respect. All the development activities will be initiated and generated from the headquarter area. The development activities will cause influx of more people from rural areas to the headquarter area, which obviously, would lead to further expansion and development of headquarter area. Urbanization without planning has long ranging impact on physical and social environment of urban areas, which in turn, not only bring miseries to the urban dwellers but also hamper rationale and economic use of scarce urban land resources. Land use plan is a guideline for orderly physical development of an urban centre. It aims to integrate the urban activities for creating better living environment and efficient discharge of social and economic services. A well planned and judiciously managed urban growth pays handsome dividends in the form of social services.

The present project which aims at preparation of landuse plan for upazila shahar, is a timely step by the urban development directorate in order to promote orderly development of small urban centres of upazila headquarter.

1.2 Project Methodology

1.2.1 General

This chapter will also describe the methods of survey which the consultant applied for collecting various types of information. Data collected through these surveys would enable the consultant to prepare the landuse plan of the Nachole upazila shahar.

1.2.2 Delineation of the Study Area.

Prior to collection of data on study area, the consultant fixed-up a study area encompassing the mouzas surrounding the present upazila headquarter. Complete Nachole mouza and parts of Paschim Lakshampur, Kanyanagar, Panditpur and Muradpur were included in the tentative study area.

1.2.3 Landuse Survey Methods

All mouza maps in a scale of 1" = 330' were collected for conducting landuse survey in the study area. A system of field inspection and notation was used in carrying out the survey. The following articles and instruments were used for the purpose :

- Mouza maps of the study area.
- Field book.
- Colour pencil box
- and Measuring tape.

Two surveyors visited the mouzas along with the mouza maps which was used as the base map. The surveyors visited each and every plot and marked their uses on the mouza map using colour notation and also recorded the same in the field book. For identification and marking of landuse, a well designed instruction manual was followed. Different colour codes were used on the spot to mark the followings :

- Settlement, Commercial and Industrial areas
- Educational, Administrative and ancillary uses
- Agricultural areas and forests
- Flooding areas
- Drainage channels
- Roads and embankments
- River and other water bodies.

The land uses having negligible area coverage were spotted on the map in writing. Later on field book with detail information was used for checking and verification of survey maps. The surveyors took help from local Tahsil office for identification of plot numbers throughout the survey operation. Utility services engineer was engaged for supervision of landuse survey work.

1.2.4 Town Service Centre Survey

For conducting survey of approximately 200 acres study area around the existing upazila complex, mouza map of the area were collected and enlarged. This was done to make it easier to measure and draw the detailed features in and around the town service centre. The surveyors measured and recorded each and every structure and establishment within the 200 acres of town service centre. Survey maps were redrawn and converted into the scale of 1: 1000 as per requirement of Terms of Reference.

1.2.5 Re-Mapping and Area Measurement

The survey maps, after necessary verification checking and correction, were used for demarcating different land uses on the map. After identification and symbolizing each land use on the redrawn map, measurement were taken separately for each category to help to prepare the pattern of existing landuse character.

The town service centre map was prepared from the detailed landuse survey of the core area which was redrawn and corrected into appropriate scale as per requirement of the TOR. Incorporating all necessary features collected from the field, the upazila map was updated and redrawn.

1.2.6 Socio-Economic Survey

A simple questionnaire survey was conducted with a view to ascertain socio-economic and demographic pattern of the study area. The survey were carried out on household basis taking samples from each of the study mouza.

1.2.7 Determination of Hierarchy of Settlement

The hierarchy of settlements in the study area was determined on the basis of score points received against the selected parameters like existing population, socio-economic and infrastructure facilities, education, health facilities, service facilities, recreation etc.

As mouza is the smallest unit of settlement, thus they have been chosen as settlement units for appropriate determination of hierarchy ranking. Hierarchy of settlement mouzas will be determined on the basis of the score points given and total score points obtained by each mouza has been calculated. On the basis of that score points mouzas are ranked.

1.2.8 Forecasts and Establishing of Future Landuse Requirement

Determination of target population is the most important element of any strategic urban plan. So it is unnecessary to forecast the future population of both the shahar area and its influence on catchment area of Nachole. For the purpose and as demanded in the TOR. low, medium and high population projections were made (Chapter Four).

Based on the identified service population and land provision standards provided in the TOR future land requirement for different service and facilities were estimated.

1.2.9 Landuse Plan

Examining the existing situation and future requirements for the Nachole upazila shahar, an approach concept and planning principles had to be determined which were shown in chapter-5 of this report. Considering all the endogenous and exogenous factors, a proposal for landuse plan of the Nachole upazila shahar were made. All the future development work within the shahar area will be implemented in conformity with the proposed plan document.

1.2.10 Programming and Implementation Issue

In the last chapter of the report the consultant suggested for the priority activities to be undertaken by the upazila shahar development agency for proper implementation of the proposal cost implementation, development control etc. also shown in this chapter.

Chapter

2

The Upazila In Its District Context

2.1 Location and Physical Characteristics

2.1.1 Background

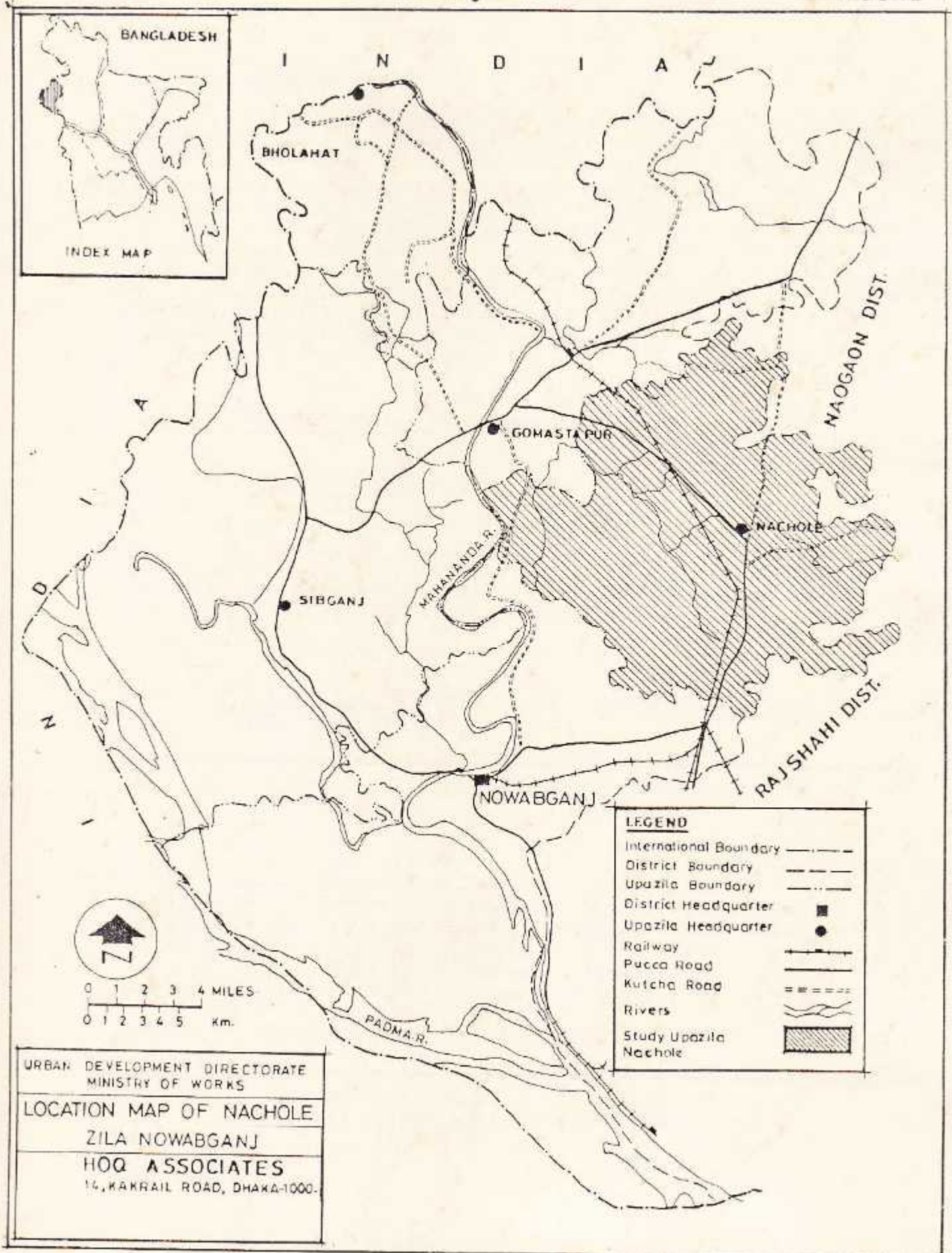
The upazila (previously Thana) came into existence in 1918. Once upon a time some travellers came to the present area of the upazila. The area was hazardous for which the travellers named it Na-chol (unsuitable for movement). Some of the local people are in the opinion that the present name of the upazila has been derived from the word Na-chol.

2.1.2 Geographical Location

Nachole is one of the upazila of newly created Nawabgonj zila. It is at a distance of 25 km (16 miles) from district head-quarter. It lies between 24°38' and 24°51' north latitude and 88°15' and 88°21' east longitude. It is bounded in the north by Gomestapur Upazila, in the south by Nawabgonj upazila, in the east by Neamtupur upazila and in the west by Shibgonj upazila. The upazila comprises a total area of 283.6 sq.km (109.5 sq.miles) including an area of 0.7 sq.km of river. Location of the upazila is shown in figure 1 and 2.

2.1.3 Physiographic Condition

In the Nachole upazila the grey brown clay loam soils of the Barind Tract closely dissected terrace are mixed with their broadly dissected terraces. Their level intermittently flooded terrace are in the south-east occurring as grey brown silty loams. The upazila is generally free from normal floods and very suitable for cultivation of paddy.



2.1.4 Climate

The upazila has typical monsoon climate with high temperature, a good percentage of humidity and moderate rainfall. There is no climatological data available for the upazila or even for the newly created zila from the secondary sources. Here we have used the climatological data of the old Rajshahi District for which data is available. According to the data of Rajshahi district, maximum temperature was 33.3oC in June and minimum 11.3o in January of 1981-82 period. Rainfall was highest (15.9 Cm.) in July and minimum (0.46 Cm.) in February of the same year. Humidity usually varies between 65-95 percent during July to February and 50-80 percent during the rest of the year.

2.2 Population and Settlement Distribution

2.2.1 Population Within the Zila

Nawabgonj zila constitutes of 5 upazilas, 49 unions and 770 mouzas, spreading over an area of 1682 sq.km (647 sq.miles). The population of the district was 933,199 of which 468,432 (50.20%) are male and 464,767 (49.80%) are female. The overall density of population was 555 persons per sq.km. The population

Table 1: Population Statistics of Nawabgonj Zila and Its Upazilas, 1961-81

Upazila	Area (Sq.Km)	Population			Density (Sq.Km)	Percentage Change	
		1961	1974	1981		1981 over 1961	1981 over 1974
Bholahat	125	29143	47094	55338	443	89.9	17.90
Shibgonj	499	203400	287845	333510	668	64.0	15.90
Gomestapur	354	81456	127138	153767	434	88.8	20.90
Nachole	286	36186	60780	74888	262	50.3	23.20
Nawabgonj	418	189916	271945	315696	755	66.2	16.11
Nawabgonj Zila	1682	540101	794802	933199	555	72.8	17.41

Source : 1. B.B.S, Rajshahi District Statistics, 1983.
2. District Census Report, Rajshahi, 1961.

of the area now within the administrative boundaries of Nawabgonj zila are 540,101 and 794,802 in 1961 and 1974 respectively. Population statistics of Nawabgonj zila and upazilas are provided in Table 1.

It is observed from the table that the population density of Nachole is 262 persons per sq.km which is the lowest and the population density of Nawabgonj is 755 persons per sq.km which is the highest. It is also observed that population distribution is not uniform within the zila. Highest population density in the Nawabgonj upazila headquarter (recently District headquarter) is the symbol of urban type of growth.

2.2.2 Population Within the Upazila

Nachole upazila is a medium size upazila of Nawabgonj zila. It comprises of 4 unions, 201 mouzas and 220 villages having an area of about 286 sq.km (110.29 sq.m). The population of the upazila was 74888 according to 1981 census of which 38250 (51.08%) are male and 36638 (48.92%) are female. The population of this upazila was 36186 and 60780 in the year 1961 and 1974 respectively. Table 2 below gives union wise population statistics of this upazila.

Table 2: Union-wise Population Statistics of Nachole Upazila, 1961-81

Union	Area (Acre)	Population			Density/ Sq.Km 1981	Household no. 1981
		1961	1974	1981		
Fatepur	12723	7935	13854	15271	295	2418
Kosba	14153	7538	13540	17440	303	2839
Nachole	17832	12079	21571	27039	373	4352
Nizampur	13346	8636	11815	15110	282	2636
Nachole	58054	36186	60780	74888	317	12245

Sources : 1. B.B.S, Union Level Statistics, 1983.
2. District Census Report, Rajshahi, 1961.

Both population and population density is highest in Nachole among the 4 unions. As the upazila headquarter, a large number of migrated population settled in this union. Total number of household of this union is 4352 with an average size of 6.21.

2.2.3 Population Structure

The composition of the total respondent population in terms of age group and sex are provided in the following table.

Table 3: Age-Sex Composition of the Respondent Population in Nachole Upazila Shahar Study Area, 1988

Age Group (yrs)	Male		Female		Both Sex	
	No	%	No	%	No	%
5 and less	10	2.45	10	3.80	20	2.98
6--10	46	11.25	28	10.65	74	11.01
11--15	46	11.31	37	14.07	83	12.35
16--20	47	11.49	33	12.55	80	11.91
21--25	45	11.06	29	11.63	74	11.03
26--30	44	10.76	28	10.65	72	10.71
31--35	33	8.07	24	9.12	57	8.48
36--40	32	7.82	24	9.13	56	8.35
41--45	38	9.29	11	4.18	49	7.27
46--50	19	4.65	12	4.56	31	4.64
51--55	9	2.26	12	4.56	21	3.14
Above 55	39	4.59	15	5.70	54	8.04
Total	409	100.00	263	100.00	672	100.00

Source: Socio-Economic Survey, 1988.

The table shows that percentage of population ranging from 6--10 to 26--30 years are about the same. The percentage of population below 15 years is about 26.34 percent, which is much lower than the Bangladesh national figure (46% of the total population). The population in the active age group (16--55 years) is about 65 percent, which is much above the national figure. The male female ratio among the respondent population is quite staggering. For every 100 male there are about 65 female.

2.2.4 Migration

Migration of population both outgoing or incoming is important factors in the population change in an area. It is more so far an urban area. But secondary sources of information regarding migration of both zila and upazila are not available. However information in this respect were collected at the time of socio-economic survey which has been elaborated in the following

paragraphs. The respondent families in the study area of Nachole Upazila shahar were inquired about the year of residency, origin and cause of migration to this area. And the results are presented in the Table 4.

About 64 percent of the households surveyed were the permanent residents of the study area and rest are migrated from other places.

Table 4: Migration Situation in the Study Area of Nachole Upazila Shahar, 1988

Category	No. of Households	%
<u>Permanent Resident</u>	81	63.78
<u>Migrants</u>	46	36.22
* Duration of Migration		
20--25 Yrs	14	30.44
15--19 Yrs	18	39.13
10--14 Yrs	9	14.56
5-- 9 Yrs	4	8.70
Less than 5 Yrs	1	2.17
Total	46	100.00
* Origin of Migrants		
Within the Upazila	4	8.70
Another Upazila	28	60.87
Another Zila	1	2.17
Another Country	13	28.26
Total	46	100.00
* Cause of Migration		
Flood & other natural calamities	13	28.26
Political & social problems	7	15.21
Prospect of earning & better living condition	23	50.00
Education of children	3	6.53
Total	46	100.00

Note: Families migrated 25 years before are considered permanent residents of the area.

Source: Socio-Economic Survey, 1988.

Most of the migrants (89.12 percent) have migrated to the study area 10 years before and migration to the area has decreased over time. There seems hardly any migration in recent years.

Most of migrants (60.87 percent) have moved from another upazila most probably from the neighboring ones. Eventhough Indo-Pak patition has taken place about 40 years ago, 28.26 percent of the migrant households came from India within the last 25 years. As the upazila is close to Indian Border, it must have taken a great influx of migrants during and immediately after partition.

The migrant families under investigation have mostly (50 percent) moved to the study area due to economic reasons. Better prospect of employment opportunities, better prospect of earning and thus better living condition. Flood, river erosion and other natural calamities is the next major reason of migration.

2.2.5 Settlement Distribution

There is no road link between the Nachole upazila and the other upazilas of Nawabgonj. Railway is the only means of public transport. The upazila headquarter is located just 0.5 Km. in the eastern side of Nachole Railway Station. A semi-pucca road linked up the upazila headquarter with the station.

Linear type of settlement were found on the both side of the link road between the Railway station and Nachole upazila bazar. Settlement in the west side of the rail road is limited. As a good rice trading centre and establishment of education institutions, Government administrative office in this upazila headquarter, there exists some extent organized settlements now. Due to relatively low land in the south and north side of the upazila headquarter there exists very limited number of settlement.

2.3 Economic Performance and Transportation Linkage

2.3.1 Employment Situation

The population of age 10 yrs. and above in Nawabgonj was 620,414 in 1981, out of which only 207,969 were engaged in earning activities, which was only 33.52 percent of the total capable labour force.

Table 5: Labour Force and Employment Statistics of Nawabgonj Zila and Nachole Upazila, 1981

Upazila/ Zila	Total Pop.	Population 10 yrs+			Labour Force 10 yrs+		
		Total	Male	Female	Total	Male	Female
Nachole	74860	50176	25857	24319	18130	17044	1086
Nawabgonj	932920	620414	309959	310455	207969	196674	11295

Source: B.B.S, Upazila Statics, Vol-1, 1985.

The employment situation of Nachole Upazila is almost same as Nawabgonj Zila. Out of 50176 population of 10 years and above age only 18130 (36.13 percent) were engaged in various earning activities in 1981.

The under employment situation is largely influenced by the fact that majority of the female work force were not engaged in any income generation activities. Participation of woman labour force was 5.43 percent for the zila and 6 Percent for the upazila only.

Like the national situation, the expected majority of the labour force were found engaged in agriculture sector in 1981. Population engaged in different occupation has been identified as shown below in table 4.

Table 6: Occupational Classification of Labour Force in Nawabgonj Zila and Nachole Upazila, 1981.

Zila / Upazila	<u>Occupational Classification</u>				Others
	Agriculture		Non -Agriculture		
	Cropping	Non-cropping	Manufacturing	Business	
Nachole	11,997 (66.17)	112 (.62)	131 (.72)	1,288 (7.10)	4,602 (25.38)
Nawabgonj	119,854 (57.63)	4,754 (2.28)	3,674 (1.77)	25,908 (12.46)	53,778 (25.86)

Note: Figure in parenthesis indicate percentage.

Source : B.B.S. Upazila Statistics, Vol-1, 1985.

About 66.79 percent and 59.91 percent economically employed labour force were engaged in agriculture related activities in the upazila and zila respectively in 1981. The percentage of non agriculture activities like manufacturing and business for both upazila and zila is 7.82 percent and 14.23 percent respectively.

2.3.2 Economic Performance of the Respondent Population

Economic performance is being analyzed by the number of respondent population engaged in various income generating activities and also by monthly income/ expenditure pattern of the households.

Total number of people found economically active in the study area was only 236. Their occupation fields are given below.

Table 7: Occupation Structure of the Economically Active Respondent in Nachole Upazila Shahar Study Area, 1988

Occupation Type	No.	%
Service	49	20.97
Business/ Trade	74	31.18
Professionals	9	3.76
Agriculture/ Agri-Labour	81	34.41
Non Agri-Labour	23	9.68
Total	236	100.00

Note: 1. Rest of the respondent population include unemployed, school going or non school going children and old people.

2. Professionals include silk weaver, doctor, carpenter, tailor etc.

Source: Socio-Economic Survey, 1988.

Considering the number of population in active age-group, that is 16--55 years, which is about 65 percent, and the number is 436 persons, the percentage of actually employed population is only 54 percent. The statistic indicates the nature of unemployment exists there. Even some of the population, especially those related with agriculture, are not employed throughout the year. Among the economically engaged population about 34.41 percent are employed in agriculture related

activities, which is the highest percentage, as expected. The next major occupation type is business (about 31.18) and it indicates that a much higher than average trading activity takes place in the study area. The next important occupation is service (20.97 percent).

2.3.3 Income-Expenditure Pattern

Information regarding income and expenditure patterns of the households in Nawabgonj and Nachole upazila are not available from the secondary sources. However, "Rajshahi District Statistics- 1983" published from B.B.S shows that per capita income of Rajshahi district (including present Nawabgonj zila) was only Tk. 1781 against the national average of Tk. 2015/-. This situation in the study area for Nachole upazila shahar can be inferred from the data collected during socio-economic survey.

Information gathered during the survey are presented in the following table:

Table 8: Monthly Income and Expenditure Pattern of the Respondent Households in Nachole Upazila Shahar Study Area, 1988

Range (Taka)	Income		Expenditure	
	No. of House- hold	%	No. of House- hold	%
Less than 1000	11	8.66	26	20.47
1000--2000	34	26.77	49	38.58
2001--3000	29	22.85	30	23.65
3001--4000	18	14.13	12	9.44
4001--5000	17	13.38	9	3.93
More than 5000	18	14.17	5	3.93
Total	127	100.00	127	100.00

Source: Socio-Economic Survey, 1988.

It is observed from the table that most of the households (60% and 82% respectively) have their income and expenditure within Taka 3000 per month. With a large majority (27% and 38% respectively) in Taka 1000--2000 range. Percentage of households earning and spending Taka 2001--3000 is same, 24 percent. The table also indicates that there are greater proportion of households spending than earning in below Taka 2001 range. But there are more household earning Taka 3000 or

above than spending it. As such it can be inferred that households earning less than Taka 2001 can not save anything. And those earning more than Taka 3000 can save some money.

2.3.4 Agriculture/ Non-Agriculture

Nachole is basically an agricultural area. This is the only upazila of Nawabgonj district which has surplus food production. The amount of surplus production is 18500 tons than the upazila requirement. Out of the total area of 69000 acres of Nachole upazila, 60,000 acres (86.96percent) were under cultivation in 1981-82. The intensity of cropping is 108.0 percent which is lowest in Nawabgonj Zila. The district and national figure of intensity of cropping is 131.57 percent and 153.70 percent respectively. Only 2000 acres of the net cropped area was under various means of irrigation in 1982-83.

There is no modern and big industrial establishment in the upazila. However there are some rice mills around the upazila headquarter. About 1,624 cottage industries mainly weaving, pottery, cane/bamboo furnitures, handicrafts, wood furniture etc. are available in the district. Table-5 below shows the land utilization characteristics of Nachole upazila, Nawabgonj zila and Bangladesh.

Table 9: Land Utilization Characteristics of Nachole Upazila, Nawabgonj Zila and Bangladesh, 1982-83

	Area Current Fallow		Cropped Area				Inten. of Cropp.	
			Single	Double	Triple	Net Total		
Nachole	69	4	55	5		60	65	108
Nawabgonj	427	15	200	82	2	284	370	130
Bangladesh	35308	1350	11464	8070	1677	21213	32637	154

Note : All the figures are in '000' acres.

Source : B.B.S, Upazila Statistics, Vol-1, 1985.

2.3.5 Transportation Linkage

The transport system of the upazila is very poor. The only means of transport towards outside from the upazila is railway. Railroad from Nawabgonj district headquarter to Rohanpur passes over this upazila. The upazila headquarter is connected with the zila headquarter by a kutcha road. The neighboring upazilas, Niamatpur and Gomastapur is also connected by a kutcha road. Rickshaw and bullock cart are the means of transport for the kutcha road in dry season. Different union parishads of this upazila are connected with the upazila headquarter by kutcha roads. There are only 3 Km metalled road as per Bangladesh Population Census 1981 of B.S.S.

Transportation linkage of the study area in relation to its surrounding region is shown in Fig. 2.1.

2.4 Social Infrastructure

2.4.1 Market/ Commerce

Commercial activities are mainly performed through hats and bazar. This upazila is one of the important rice trading centre of Rajshahi regoin. Following table shows the number of hats, bazar, bank and commercial holdings in Nawabgonj zila and Nachole upazila to identify the relative position in terms of commercial infrastructure.

Table 10: Commercial Infrastructure Statistics of Nachole Upazila and Nawabgonj Zila, 1981

	Weekly or bi-weekly Hats	Daily Bazar	Commercial Holdings	Bank Branch
Nachole	6 (11.52)	2 (9.52)	10 (5.49)	6 (11.76)
Nawabgonj	52	21	128	51

Note : Figures in parenthesis indicate percentage.

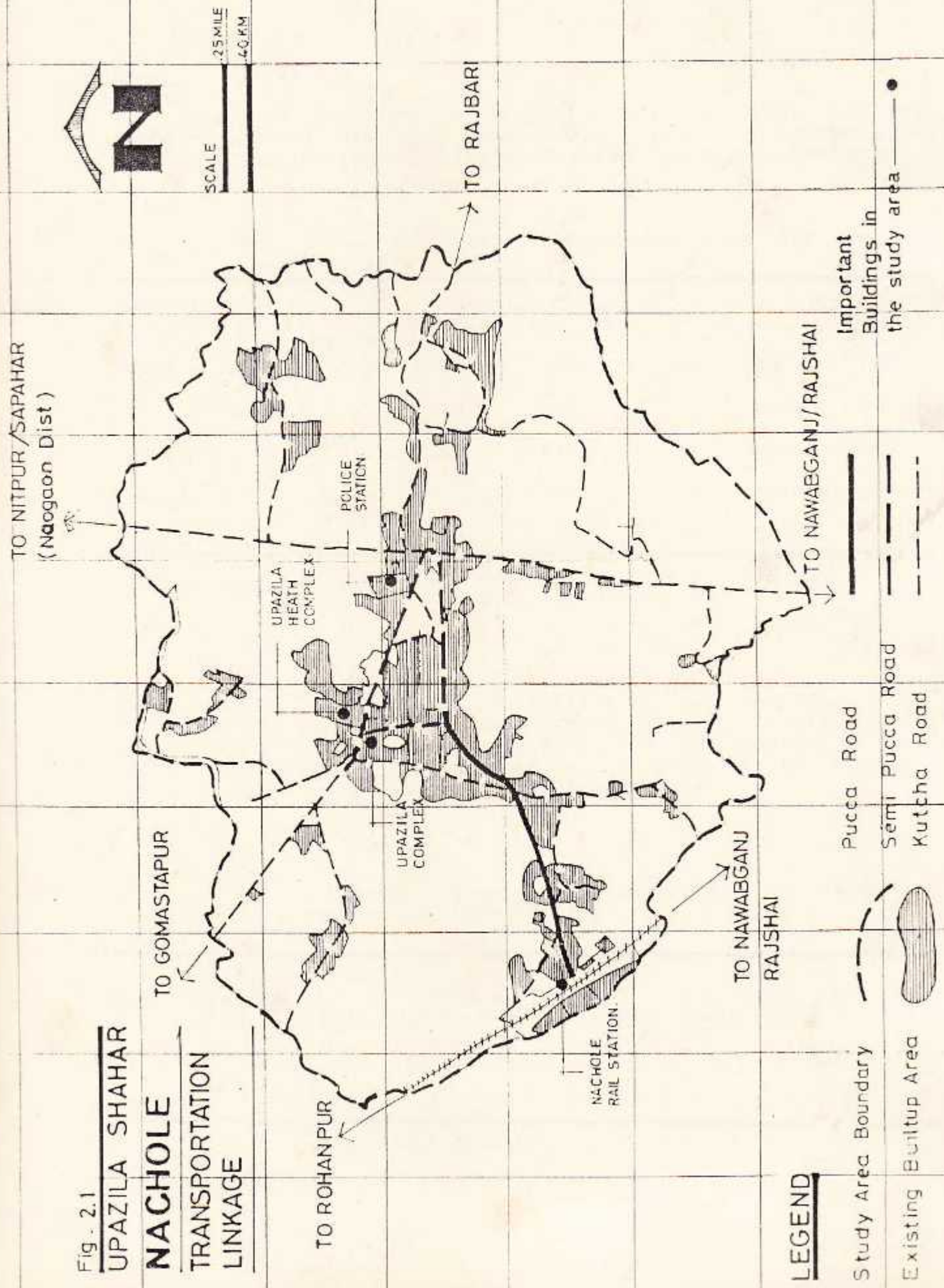
Source : B.B.S, Upazila Statistics, Vol-1, 1985.

Fig - 2.1

UPAZILA SHAHAR

NACHOLE

**TRANSPORTATION
LINKAGE**



LEGEND

- Study Area Boundary
- Existing Builtup Area
- Pucca Road
- Semi Pucca Road
- Kutchha Road
- Important Buildings in the study area

2.4.2 Education

The education situation for both Nawabgonj zila and Nachole upazila has been analysed by providing number of education institution and literacy rate in the tables below.

Table 11: Education Facilities in Nawabgonj Zila and Nachole Upazila, 1981

Educational Institution	Nachole		Nawabgonj	
	No.	Students	Pop/Inst	No. Stdents Pop/Inst
Primary School	48	6637	1560	350 83759 2666
Junior High School	3	320	24962	287 5000 34563
Secondary School	10	1360	7488	85 21107 10976
College	1	163	74888	9 4318 103689
Madrasha	3	180	24962	30 5600 31107

Source: 1. B.B.S, Rajshahi District Statistics, 1983.
2. Nachole Upazila Chairman Office.

The table indicates the number of population served by each type of institution for the upazila is lower than the zila. It is due to the lower population of the upazila in relation to other upazilas of the zila. Even though the number of the institution should be increased and existing one can be expended and improved to support the present population.

Table 12: No. of Literate Persons and Literacy Rate in Nawabgonj Zila and Nachole Upazila, 1981

Upazila/ Zila	Total Population	Literate Person			Literacy rate (%)		
		Male	Female	Total	Male	Female	Total
Nachole	74888	7976	3203	11179	24.8	10.5	17.9
Nawabgonj	932920	87826	43622	131448	22.5	11.2	16.9

Source : B.B.S, Upazila Statistics, Vol-1, 1985.

The literacy rate of Nachole upazila is slightly higher than the zila.

About 26.53 percent of the respondent population are illiterate, Considering the national average rate of literacy the percentage of educated people are quite high. The rate of illiteracy is higher in female (34.39%) than in male (21.55%).

Table 13: Level of Education of the Respondent Population of Nachole Upazila Shahar Study Area, 1988

Level of Education	Male		Female		Both Sex	
	No	%	No	%	No	%
Illiterate	86	21.55	87	34.39	173	26.53
Primary	136	34.06	89	35.18	225	34.51
Secondary	94	23.56	52	20.55	146	22.39
Higher Secondary	45	11.29	19	7.51	64	9.82
Graduate and above	38	9.52	6	2.37	44	6.75
Total	399	100.00	253	100.00	652	100.00

Note: Rest of the respondent population are below schooling age.

Source: Socio-Economic Survey, 1988.

Population educated upto primary and secondary level are about 34.51 percent and 22.39 percent respectively. Population with higher secondary (9.82 percent) and graduation (6.75 percent) level education is remarkably high considering the semi-urban locality of Nachole Upazila shahar study area.

2.4.3 Health Facilities

Relative position of health facilities for Nawabgonj zila and Nachole upazila is being analysed by the information shown in the following table.

There are only two MBBS Doctors in the Upazila Health Complex. Total number of qualified doctor including Homeopath serve the whole upazila population. Population per doctor is very high in relation to the zila.

Table 14: Health Facility Statistics of Nawabgonj Zila and Nachole Upazila, 1981.

Facilities	Nachole		Nawabgonj	
	No.	Pop/Facility	No.	Pop/ Facility
Upazila Health Complex	1	74888	4	233299
Bed	-	-	36	25922
Charitable Dispensary	-	-	15	62213
Other Health Centre	-	-	1	933199
Qualified Doctor	5	14877	123	7586
Family Planning Clinic	5	14977	23	40574

Source : B.B.S, Rajshahi District Statistics, 1983.

2.4.4 Urban Services and Utilities

Some of the important urban services and facilities which are available in Nawabgonj zila and Nachole upazila are listed in the following table.

Table 15: Urban Servives and Utility Statistics of Nawabgonj Zila and Nachole Upazila, 1981

Services	Nachole		Nawabgonj	
	No.	Pop/Facility	No.	Pop/ Facility
Cinema Hall	-	-	4	233299
Post Office	5	14977	55	16967
Telegraph Office	1	74888	8	116649
Deep Tube Well	12	6240	1	933196
Tube well	541	138	4514	206
Village with Electricity	3	-	40	-
Dak Banglow/Rest House	1	74888	7	1333114

Other Govt. Office	20	3744	189	4937
Public Library	-	-	2	66599
Registered Club	-	-	25	37328

Siurces : 1. B.B.S, Rajshahi District Statistics, 1983.
2. Upazila Chairman Office.

Compared to Nawabgonj zila, Nachole upazila possess relatively less urban facilities. There is no Cienama Hall, Public Library and Registered Club in the upazila. The information shows that both the zila and upazila lack very much in urban activities.

2.5 Current Development Projects

In the financial year 1987-88 total fund available to Nachole upazila parishad is TK. 39,48,856/- only. The parishad is allocated this fund into different sectors as shown in Table 16. The parishad is also identified the projects they are going to implement during the period. List of projects with their estimated cost is given Table 17.

Table 16: Sector-wise Allocation of Development Fund in Nachole Upazila, 1987-88

Sector	Allocation	
	Taka	Percent
Agriculture and Irrigation	1,08,245	2.74
Physical Infrastructure	17,15,450	43.44
Socio-Economic Infrastructure	7,17,998	18.18
Health and Social Welfare	7,60,994	19.27
Sports and Culture	10,300	.26
Development Grant to Union Parishad	6,29,819	15.95
Total	39,48,856	100.00

Source : Upazila Parishad, Nachole, Nawabgonj.

Table 17: List of Projects Identified by Nachol Upazila Parishad
1987-88

Description of Work	Estimated Cost (Taka)
1. Face wall of Pipe culvert-1 on Singrail road	64,468.00
2. Face wall of Pipe culvert-2 on Singrail road	64,183.00
3. Box culvert on Muradpur road	64,468.00
4. 15'-0" Bridge on Karamja Khal of Kasba Union	3,26,620.00
5. Wing wall of Darbeshpur bridge of Nachole Union	79,583.00
6. 10'-0" Culvert on Shibpur road of Kasbha Union	1,10,775.00
7. 6'-0" Culvert on Shibpur road of Kashba Union	93,557.00
8. Box culvert on Shanpur Khal of Fatepur Union	2,55,041.00
9. Haringbone road from Court building to B.R.D.B Office	32,796.00
10. 20'-0" Bridge on gamastapur road at Azair	2,31,254.00
11. 12'-0" Bridge on Rajbari road at Dighipara	1,24,705.00
12. 20'-0" Bridge on Shiala Khal	2,68,000.00
13. Const. of verandah & door window of Verandi H.School	93,513.00
14. Const. of steps for Upazila Parishad Pond	1,46,000.00
15. Const. of steps for Nachole Pilot School Pond	1,46,000.00
16. Const. of steps for Oak Banglow Pond	2,60,435.00
17. Completion of Golabari Community Centre	1,92,565.00
18. Community centre for Nachole union parishad	2,56,018.00
19. Takerhat Community centre of Fatepur Union	1,81,236.00
20. Const. of Rest house in Sonaichandi hat	4,70,994.00

Source : Upazila Parishad, Nachole, Nawabgonj, 1988.

2.6 Determination of Hierarchy of Settlements

The hierarchy of settlements in the study upazila has been determined on the basis of score points received against the selected mouzas.

As mouza is the smallest unit of settlement, they have been chosen as settlement units for determination of hierarchy. The selected parameters were population size, availability of infrastructure facilities, education, economic activities, health, transport linkage, service facilities and recreation etc. Sub-items under each item has been assigned with score points. Accordingly each mouza has been ranked out depending on the score points received for available services. Format for collecting information for determining hierarchy of settlements is provided in Annex A. Table 18 below provides the items and distribution of grade points.

Table 18: Score Code for Settlement Ranking

	Score		Score
<hr/>			
<u>A: Population</u>			
Less than 500	10	2001--2500	50
501--1000	20	2501--3000	60
1001--1500	30	3001+ above	70
1501--2000	40		
<u>B: Commerce</u>		<u>C: Industry</u>	
Bank	10	Large	50
Daily Bazar	8	Small & Cottage	20
Weekly/bi-weekly hat	6		
Collection of Shops	5		
<u>D: Health</u>		<u>E: Education</u>	
Hospital	10	College	10
Clinic	5	High School	5
Dispensary	3	Primary School/ Madrasha	3
<u>F: Other Facilities</u>		<u>G: Transportation</u>	
Post Office	5	Pacca Road	10
Cinema hall /		Semi-pacca	5
Community centre	5	Kutchia Road	3
Telephone/Telegram	3	Bus/Rail Station /	
Hotel/ Dak Banglow	3	Launch Station	10
Park/ Play Ground	3		
Mosque/Temple/Church	3		

26 mouzas of the study area have been listed in hierarchical order. Table 19 and 20 shows the available services in each mouza and score points and total score received by each mouza for available services. From the table it shows that mouza Nachole with 527 score points, is the highest ranking mouza in the upazila. This mouza is the headquarter of the union and also upazila has college, schools, bazar, health centre and other establishments with a relatively good number of the upazila. The two mouzas that follows next to Nachole are Shrirampur and Uttar Mallikpur. After ranking of the mouzas according to the score points they obtained, they were again divided into different hierarchical classes as per following guide line.

Critoria	Hierarchy Class
More than 200	A
From 100 to 200	B
From 50 to 100	C
From 20 to 50	D

Table - 19: Available Services Of Selected Mouzas Of Nachole Upazila, 1988.

	Pop '81	COMMERCE				INDUSTRY		HEALTH			EDUCATION			OTHER FACILITIES								TRANSPORTATION			
		Daily Bazar	Weekly	Collection of Shops	Bank	Large	Small & Cottage Type	Hospital	Clinic	Dispensary	College	High School	Pri-School/ Madrasa	Post Office	Electricity	T & T	Cinema Hall/ Comm Centre	Motel/Dak Bungalow	Park/ Play Field	Mosque/ Temp./Chaur	Pucca Road	Semi Pucca Road	Katcha Road	Bus/ Rail Station	
Nachole	4155	1		3	3	1	50	1	1		1	2	2	1	✓	✓	1	2	1	5	✓	✓	✓		
Muradpur	1327														✓					6			✓		
Muktapur	1969											1							1	3			✓		
Srirampur	1052	1		2			3				1	2						1	1	2	✓	✓	✓	1	
Panditpur	170																			3			✓		
Dulahar	529										1	2								4		✓	✓		
Bherendia	706										1	1								5			✓		
Uttar Mallikpur	759	1	1	1	1		5			1		2	1							3	✓		✓		
Bahir Mallikpur	468			1			2							✓						2	✓	✓	✓		
Fatepur	1248						1					1								5		✓	✓		
Diarkhalsi	1631										1									4					
Salalpur	561			1						1		1								2		✓	✓		
Sanpur	640			1								1								2		✓	✓		
Paharpur	974			2								1								3		✓	✓		
Phulbari	689			1								1								2			✓		
Takahara	409			1								1								1			✓		
Madabpur	693			1								1	1							2			✓		
Sonaichandi	475			1							1	1	1							2			✓		
Khandura	545											1								1			✓		
Nizampur	1255			1								1								5				1	
Bakhail	741			1							1	1	1												
Kharebari	277			1							1	1								1					
Dimkail	590										1	1													
Laksmipur	730																								

Source :- Upazila Parishad, Nachole Upazila, 1988.

Table-20. Score Points Received By Selected Mouzas Of Nachole Upazila. 1988.

	Pop '81	COMMERCE				INDUSTRY. HEALTH			EDUCATION			OTHER FACILITIES								TRANSPORTATION				Total Score.	
		Daily Bazar	Weekly Fair	Collection of Shoppers	Bank	Large	Small & Cottage Type	Hospital	Clinic	Dispensary	College	High School	Prv-School/ Madrasah	Post Office	Electricity	T & T	Cinema Hall/ Comm Centre	Hotel/Dak Bungalow	Park/ Play Field	Mosque/ Temple/Church	Pucca Road	Semi Pucca Road	Katcha Road		Bus/Rail Station
		8		15	30	50	250	10		3	10	10	6	5	10	3	5	6	3	15	10	5	3		527
Nachole	70														10					18			3		61
Munadpur	30																								
Muktapur	40			5									3						3	9			3		63
Srirampur	30	8		10			15					5	6		10			3	3	6	10	5	3	10	123
Panditpur	10																			9			3		22
Dutahar	20											5	6							12			3		36
Bherendie	20											5	3							15			3		46
Uttar Malikpur	20	8	6		10		25			3			5	5						9	10		3		105
Bahir Malikpur	10			5			10								10					6	10	5			56
Fatepur	30						5						3							15		5	3		61
Diarkhalsi	40											5								12					57
Salatpur	20			5						3			3							6		5			42
Sanpur	20			5									3							6		5			39
Paharpur	20			10																9		5			44
Phulbari	20			5									3							6			3		37
Takahara	10			5									3							3					24
Madabpur	20			5									3							6			3		42
Sonaichandi	10			5								5	3	5						6			3		37
Khandura	20												3							3			3		29
Nizampur	30			5									3							15				10	53
Bakhail	20			5								5	3	5											38
Kharebari	10			5								5	3							3					26
Dimkail	20											5	3												28
Laksmipur	20																					10			30

Table below provides the list of first 15 mouzas according to the hierarchal ranking along with their score points.

Table 21: Hierarchial Order of Major Settlement Mouza within Nachole Upazila

Hierarchial Order	Mouza	Total Score	Hierarchy Class
1st	Nachole	527	A
2nd	Shrirampur	123	B
3rd	Uttar Mallikpur	105	B
4th	Nizampur/Muktapur	63	C
5th	Fatepur/Muradpur	61	C
6th	Diar Khalsi	57	C
7th	Bahir Mallikpur	56	C
8th	Dulahar Bherendie	46	D
9th	Paharpur	44	D
10th	Salalpur, Madabpur	42	D
11th	Sanpur	39	D
12th	Bakhail	38	D
13th	Sonaicand/Phulbari	37	D

Chapter

3

The Upazila Headquarter

As the upazila programme is trying to provide services and facilities of adequate nature for the rural people, it is essential to identify the area and population which will be benefited by the services at the upazila centre. This chapter describes the process of identifying and detail statistics of the catchment area and study area of Nachole Upazila shahar. Supporting information for the process are existing demographic, socio-economic situation and landuse patterns collected from both secondary and primary sources.

3.1 Sphere of Influence /Attractiveness

The catchment area of the sphere of influence for a urban centre can be termed as the area around the centre from where maximum number of people commute to the centre to avail the services. But the process of getting an areal boundary of such a sphere of influence is quite a complicated and lengthy one. The factors that need careful and through consideration are

- The existing situation in terms of quality and quantity of services, transportation network, transportation means, general economic situation of the population etc.
- The anticipated situation in the future in terms of quality and quantity of services, improved transportation network and means etc.
- Proximity of both higher order and lower order centres, nature of services available there.

The type of services which are intended for the upazila centres are also not same. As a result, each one of them will have different zone of influence. One good example can be administrative and judicial services for which population of the whole upazila have to come to the centre no matter how far they are located. But for all other services people have a choice, they will select a centre convenient to them depending on the distance, traveltime, mode of travel, choice of material etc. For the goods and services of improved quality people might prefer to go to zila headquarter. On the other hand for the goods of basic/primary nature, it will be convenient to go to nearest market or group of shops.

Again some of services have a range or time distance beyond which they become unattractive to the target population. If a primary school or a small community open space is located at distance that requires more than 10-15 minutes walking, their utilization might not be optimal.

Having discussed and considered these general issues of identifying catchment area of a service centre, the consultant has also undertaken a survey in the upazila centre to have an overview of the catchment area of the existing services. (Format for catchment area determination is provided in Annex C)

The findings are presented in descriptive form in the following paragraphs.

- About 50 percent of the respondents were found coming from less than 3 miles distance from the centre. About 25 percent were found from 3-10 miles range and rest 25 percent were from more than 10 miles range.
- People coming to the centre from a distance less than 4 miles usually came by foot. Those coming within 4 to 10 miles range used Cycle or Rickshaw. People coming from more than 10 miles distance usually used Train.
- Out of 50 respondents people coming for different purpose were found as follows:

Business	=	12
Service	=	9
Education	=	5
Administrative	=	9
Shopping	=	6
Health	=	3
Other	=	6

- Almost all the respondents go to the zila headquarter at least one to two/three time a month. And almost all respondents prefer nearest market or group of shops for daily bazar or items of daily necessity.

Table 22: Area and Population Statistics of Nachole Upazila
Shahar Catchment Area

Mouza	Area(Acre)		Population			Household
	Total	Involved	1961	1974	1981	
Paschim Lakshampur (p)	298	52	19	37	46	9
Kanyanagar (p)	361	119	43	195	209	33
Panditpur (p)	243	131	37	77	94	12
Muradpur (p)	416	100	19	173	318	44
Mizampur (p)	920	782	135	644	1067	151
Baidyapur	278	278		21	37	9
Surla	402	402	249	231	198	40
Khojarpara	204	204	85	168	138	24
Ghion	1446	1446	306	261	211	37
Sahapur	226	226	75	266	370	41
Paranpur	128	128	9	69	101	11
Guthail	244	244	156	375	493	69
Bechenda	397	397	121	183	217	43
Surjyupur	445	445	221	775	529	97
Baje Hakrail	139	139	59	143	54	11
Jhikra (p)	573	287	113	217	274	38
Itla	235	153	51	78	99	13
Abdulpur	251	251	171	243	282	50
Darbespur	327	327	220	311	360	72
Jotamati	206	206	-	17	26	6
Masirabad	196	196	294	451	535	99
Audhurail	240	240	188	295	353	74
Purba Mirzapur	310	310	204	345	421	77
Shamespur (p)	493	198	73	96	108	14
Benipur	574	574	250	441	549	103
Brahamanpur	183	183	202	233	250	49
Gonoir	298	298	103	173	211	37
Halaspur	141	141	98	178	222	39
Ajipur	119	119	65	1141	189	37
Moktapara	1376	1376	860	507	1964	279
Chowpa Khuria	300	300	213	421	560	74
Sibpur	303	303	210	325	437	68
Chandroil	392	157	87	123	154	24
Khesba	961	961	576	876	1333	192
Uttar Sagun (p)	239	95	47	59	68	12
Gopalpur	387	387	223	676	504	57
Deopara	222	222	149	285	357	60
Total	14478	12327	6498	11174	13143	2098

Source: 1. District Population Census, Rajshahi District, 1961.
2. BBS, Village Population Statistics, 1974.
3. BBS, Bangladesh Population Census, 1981 Thana Series.

On the basis of all these considerations and informations the catchment area of Upazila Shahar Nachole has been determined which extends 3 Km to 5 Km on different directions from the centre. Figure 2 identifies the area and Table 22 presents the area, population, household number of the mouzas included in the catchment area.

3.2 Definition of Headquarter Area

According to a BBS publication (Community Tables of All Thanas of Rajshahi District, 1981) total built-up area of Nachole Upazila Shahar was about 4.5 Sq.Km.. With a population size 4155 and density 923 persons per Sq.Km. But during the survey it was found that net built-up area is about 250-300 acres. It is mainly concentrated along the main road.

The study area for the future shahar area of Nachole upazila includes the existing built-up area and its surrounding areas that are likely to be developed into urban areas in near future. To determine the tentative study area following factors were duly considered.

- Existing location of the built-up areas and their condition.
- Existing trend and direction of development around the core area of the shahar.
- Existing pattern of transportation network and future regional linkage prospects.
- Analysis of topographical situation and location of important current use areas to identify the potential areas that could be converted into urban areas with minimum development and social cost.

Accordingly an area of 2034 areas tentatively selected for the study area. After conducting detail survey, analyzing the future land requirement, socio-economic situation, topographical situation final shahar area will be determined. The preliminary shahar area consists of the following mouzas, where the population was 5662 and household number was 837 according to 1981 census.

Table 23: Area and Population Statistics of Nachole Upazila Shahar Study Area

Mauza	Area(Acre)		Population			Household
	Actual	Involved	1961	1974	1981	
Nachole	1117	1117	1118	2252	4155	616
Paschim	298	246	91	174	214	40
Lakshampur						
Kanyanagar	361	234	85	158	209	33
Panditpur	110	243	39	63	76	9
Muradpur	416	316	426	548	1008	139
Total	2302	2034	1759	3200	5662	837

Note: Population of the mouzas considered partly for the study area, is also taken proportionately.

Source: 1. District Population Census, Rajshahi District, 1961.
2. B.B.S, Village Population Statistics, 1974.
3. B.B.S, Bangladesh Population Census, 1981 Thana Series.

3.3 Existing Landuse, Facilities and Utilization Characteristics.

After the preliminary boundary of the shahar area for Nachole upazila has been fixed, existing uses of this area have been surveyed plot to plot on C.S. map as desired by the TOR. In addition to that an area of about 200 acres is also identified for the town service centre and detail plain table survey has been carried out. The existing landuse pattern, facilities and their utilization characteristics are discussed in the following paragraphs.

3.3.1 Existing Landuse

The existing built-up area of Nachole upazila shahar is the cumulative result of the unplanned growth of homestead areas, scattered provision of services for a long time. Most of the built-up area is located on both sides of the roads up to the railway station, one that goes towards Gomastapur Upazila and the road that passes by the side of Upazila Complex. The triangle space in between these three roads are most intensely built. Apart from the homestead areas almost all the service facilities are located in this area. Rest of the built-up area are scattered group of homesteads connected with the core area by Kutchra roads.

Typical of most upazila shahars the most dominating landuse type is agriculture land. About 75.75 percent of land of the study area are under various type of agricultural land. About 12.03 percent land of the study area are under homestead blocks. Which is the next major category followed by waterbodies (5.36 percent). Rest of major category land are negligible in percentage compared to the total area.

The detail landuse of the study area is shown in Figure 3 and presented in the following table.

Table 24: Existing Landuse Statistics of the Study Area of Nachole Upazila Shahar, 1988

Landuse		Area	
Broad	Detail	Acre (Ha)	%
Agriculture	Agriculture	1540.70 (622.76)	75.75
Commerce	Market	8.8 (3.56)	0.43
	Shops	4.8 (1.94)	
	Bank	2.8 (1.13)	
		1.2 (0.48)	
Industry	Small & Cottage type	4.60 (1.86)	0.23
Education	Primary School	12.45 (5.04)	0.61
	Secondary School	1.85 (0.75)	
	College	3.75 (1.52)	
	Madrasa	4.60 (1.86)	
		2.25 (0.91)	
Health	Health Complex	9.45 (3.82)	0.46
	Vetenary Hospital	9.00 (3.64)	
		0.45 (0.18)	
Administration	Govt. Office	17.45 (7.06)	0.86
	Semi-govt Office	13.00 (5.26)	
		4.45 (1.80)	
Socio-cultural	Mosque	2.08 (0.84)	0.10
	Graveyard	1.26 (0.51)	
		0.80 (0.32)	

Landuse		Area	
Broad	Detail	Acre (Ha)	%
Urban Services		26.82 (10.86)	1.32
	Post Office	2.25 (0.91)	
	Police Station	5.00 (2.02)	
	Railway Station	15.25 (6.17)	
	Godown	2.82 (1.14)	
	Dak Banglo	1.50 (0.60)	
Residential	Residential	244.75 (99.09)	12.03
Recreation	Play Ground	0.80 (0.32)	0.04
Waterbodies	Tank, Pond, Canal	111.00 (44.94)	5.46
Road		55.12 (22.31)	2.71
	Pacca	5.02 (2.03)	
	Brick-Soling	23.15 (9.37)	
	Kutchra	26.95 (10.91)	
Total		2034.00 (823.48)	100.00

Source: Landuse Survey, 1988.

3.3.2 Facilities and Utilization Characteristics

Existing facilities in the study area and their utilization characteristics are presented below.

Agriculture : At present about 75.75 percent of the study area is under different type of agricultural use. Most of these land are fertile but intensity of cropping is quite low because of scarcity of water in dry season. There is no forest area in the study area.

Commerce : The land under commercial use include market (hat/bazar) areas, small shops and commercial banks. Market, Shops and Bank branches occupy 4.6 acres, 2.6 acres and 1.2 acres respectively. Total area covered by commercial uses is only 0.43 percent of the study area.

Industrial : There is no large scale industry situated within the study area. Even among small and cottage type of industry, only few rice mills are available. Total area covered by them is about 4.6 acres which is 0.23 percent of the study area.

Education : All the educational facilities are included in this category. Existing facilities are two primary school, one college, three madrasahs. Total area covered by educational facilities are 12.45 acres which is about 0.61 percent of the study area.

Health : Only available health facility in the study area is the upazila health complex which covers an area of 9.00 acres. There is also a small veterinary hospital on about 0.45 acres of land. Health facilities comprise of 0.46 percent of the study area.

Administration : According to TOR, administration include both govt and semi-govt establishments. Recently established and constructed upazila complex contains all the govt offices and situated on 13.00 acres of land. Apart from that semi-govt organisations like Public Health, Forest, Fisheries dept. have their establishments in the study area. Altogether these establishments occupy about 4.45 acres. Total administrative use occupy about 0.86 percent of the study area.

Recreation : Only recreational facility available in the study area is a 0.8 acre play field near the railway station. There is no cinema hall, park in the study area. There are play fields attached to the college and boys high school.

Socio-cultural : Among the socio-cultural facilities listed in the TOR, only few mosques and two small graveyards are available in the study area. Together they occupy about 2.06 acres of land and which is 0.10 percent of the study area.

Urban services : Available urban services in the study area are Post office, Police station, Railway station, Godown, Dak Banglo. They occupy about 26.82 acres of land which is 1.32 percent of the study area. Major share of this land belongs to railway station which is 15.25 acres.

Residential : Land occupied by mostly private homesteads amounts to about 244.75 acres. These homesteads are mostly concentrated along with other facilities in the core area. The rest are in cluster of 4/5 houses and scattered all over the study area. They are interconnected and connected with main roads by Kutcha roads. Residential use areas amount to 12.03 percent of the study area.

Waterbodies : Most noticeable feature is the number of the ponds, tanks scattered all over the study area. They are usually accompanied by homesteads and the soil by digging them out were used to raise the land for homesteads.

Land occupied by Tanks, Ponds, Khals is 111.00 acres about 5.46 percent of the study area.

Roads : There are good number of access ways in the study area. The pucca main roads have on an average 40-45 feet right of way, but only 12-15 feet concrete paved access way. Similar brick soling roads have about 15 feet brick soling part with 40-45 feet right of way. Kutcha roads are on an average 20 feet wide.

Total area covered by all three type of roads are about 55.11 acres and it is about 2.71 percent of the study area.

3.4 Physical Opportunities and Constraints

During the survey the physical opportunities and constraints of Nachole Upazila Shahar Study area were noted down. The process was also greatly benefited by discussion with local officials and peoples representatives specially the Upazila Chairman.

3.4.1 Physical Opportunities

One major advantage of the study area and the upazila as a whole is the population density, which is much less than Bangladesh national figure. One reason might be migration of Shattals to neighboring country.

Nachole Upazila Centre is an important trading area in the region. Sonaichandi, a small growth centre of Nachole, has the biggest cattle market in the region. People from as far as Khulna and Bagerhat come to Nachole for buying rice, as it has

surplus food production. If regional transportation network is improved, Nachole Upazila can earn substantial amount of revenue to gear up its own development.

Eventhough, there is only one crop in a year because of scarcity of water, Nachole upazila has surplus food production due to very low population density. If irrigation facilities could be improved so as to have higher intensity of cropping, the additional income will lead to economic development of the area.

The major roads in the area shows reasonable alignment and distribution. Most of them if improved, will form the major roads of the future road network system.

3.4.2 Physical Constraints

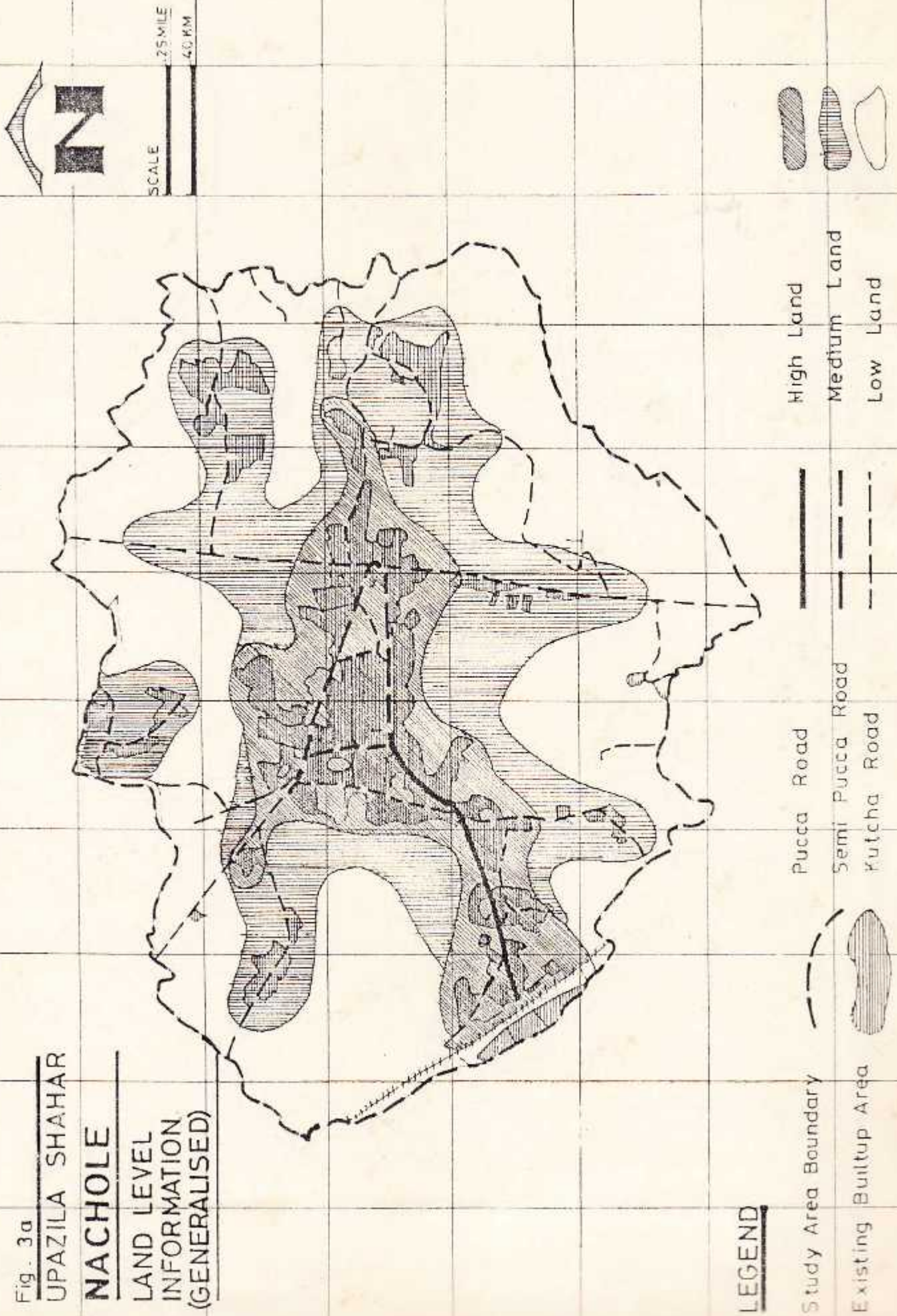
All the existing facilities are scattered all over the built-up area. Which might lead to the difficulty of having ideal zoning of landuses in future. There is also tendency of extending the built-up area along the main roads.

Communication system within the study area and beyond is in a deplorable state. While the major roads show some alignment and direction, the kutcha ones are quite scattered and zigzag. It will be difficult to have some alignment of these roads to include them as secondary and tertiary roads in future.

The upazila shahar study area and the upazila as a whole is part of Barind tract. As such land undulation is common and the whole area is generally flood free. Fig. 3a indicates the land level (generalised) situation of the study area. But soil condition in the study area is very poor. As a result foundation failure is frequent. It will lead to higher construction cost for building and physical infrastructure development.

Land value might be an additional constraint for physical development. As most of the land are privately owned, the public agency will need a list of compensation money to acquire land for public uses. Land value informations are provided in the following table. Fig. 3a indicates the land value (generalised) information of the study area.

Fig. 3a
UPAZILA SHAHAR
NACHOLE
LAND LEVEL
INFORMATION
(GENERALISED)



LEGEND

Fig. 3b
UPAZILA SHAHAR
NACHOLE
 LAND VALUE
 INFORMATION
 (GENERALISED)

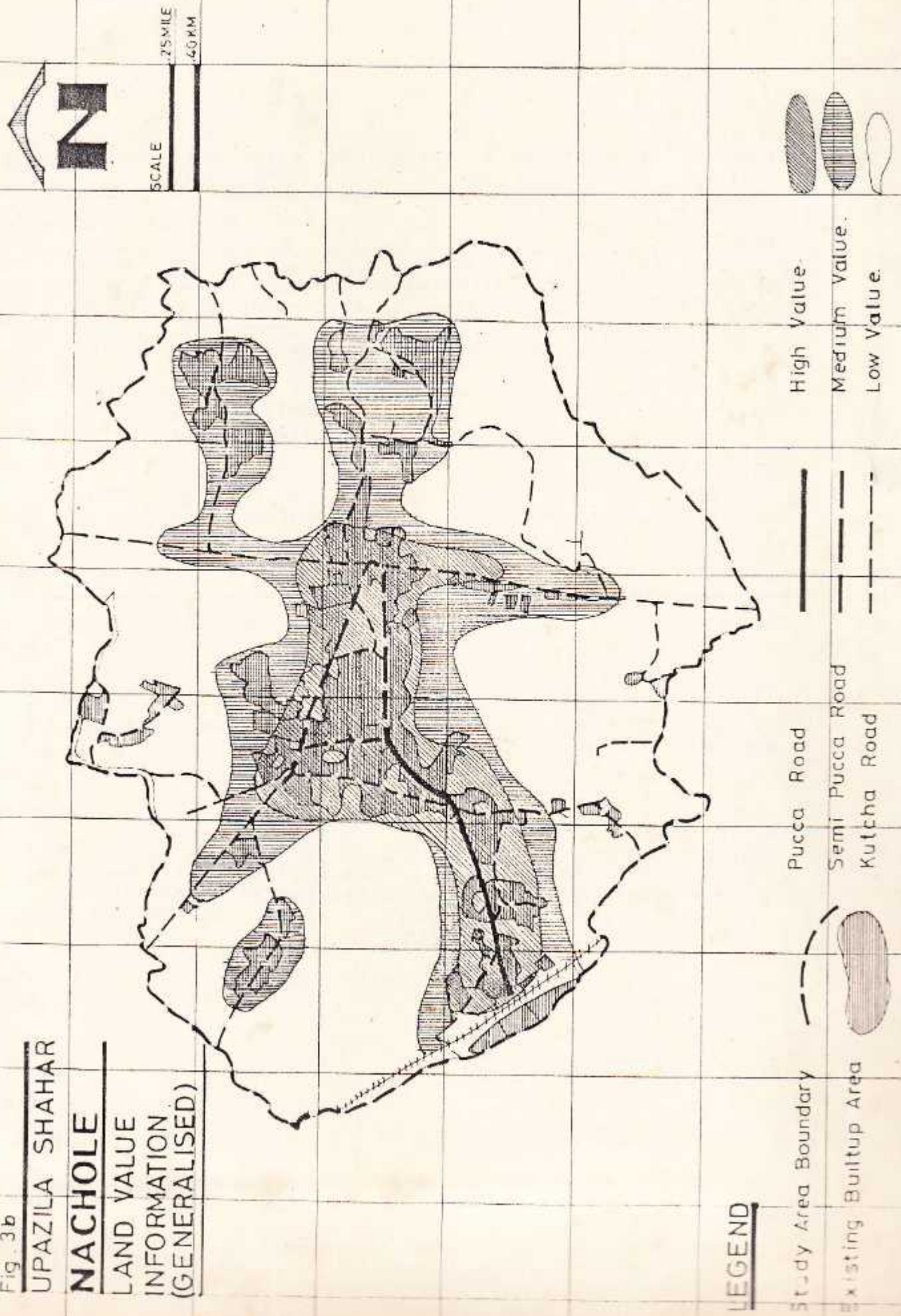


Table 25: Land Value Information in Nachole Upazila Shahar Study Area, 1988

Type of Land	Price per acre (Taka)
In and Around Upazila Complex Within the Existing Built-up-area	600,000
o Commercial Area	350,000
o Homestead, Educational and other use areas	250,000
Within the Study Area	
o Homestead	175,000
o Agriculture	
High	90,000
Low	125,000
Within the Study Area	
o Homestead	100,000
o Agriculture	
High	60,000
Low	90,000

Source : Landuse Survey, 1988 & Upazila Parishad, Nachole.

It is interesting to note that in agricultural area low land are more valuable then the high land. As water for irrigation is scarce it is possible to have more then one crop in low land.

Land ownership issue also needs careful consideration. Ownership of land is quite disputed and lands of Shawtal people are being forcefully occupied by local influential people. There are also large percentage of land owned by people who do not stay in the upazila.

Chapter

4

Forecasts

4.1 Population, Household Structure and Density

First of all it is necessary to forecast the future population both for Nachole Upazila Shahar area and its catchment area. The forecast should be as much realistic as possible, which is very difficult for Nachole Upazila Shahar as reliable data on birth rate, death rate and migration is not available. Only base population that is available is the population figures for three census year - 1961, 1974 and 1981. On the basis of that inter census growth rates were identified. The population forecast were made on the basis of these growth rates and certain assumptions.

As demanded by the TOR low, medium and high population projection were made. For the high projection a combination of slow decline in fertility rate (which exists now), lower mortality rate (from the existing level) and high immigration flow is assumed. For the low projection it is assumed that fertility rate will fall, taking into account the positive effect of family planning program of the government and also the area will experience a lower migration flow because of improved employment opportunities in the rural areas. The medium projection is taken between the two.

4.1.1 Sphere of Influence

The population of the area that has been identified as the catchment area of Nachole Upazila Shahar were 6498, 11174, 13143 in the census year 1961, 1974 and 1981 respectively. The growth rates of 1961-81, 1961-74, 1974-81 period were 3.26, 2.90 and 3.87 respectively. On the basis of these growth rates and also considering different level of migration flow to the catchment area high, medium and low growth rates area assumed to be 3.95, 3.10 and 2.25 respectively. The base population of all the projection, were taken to be 13143 in 1981.

Table 26: Population Projections for the Catchment Area of Nachole Upazila Shahar

Year	Projection		
	High (GR: 3.95)	Medium (GR: 3.10)	Low (GR: 2.25)
1981	13,143	13,143	13,143
1985	15,345	14,850	14,366
1990	19,361	17,835	16,418
1995	23,499	20,830	18,350
2000	28,522	24,202	20,509
2005	34,969	28,126	22,923

Abbreviation : GR = Growth rate

The growth rates for all three projections exceeded the expected national rate of growth because of inclusion of and assumed percentage of migrants to the catchment area from the surrounding areas. Eventhough the growth rates will change over the 20 years plan period, an average growth rate is assumed for the sake of simplicity.

Considering the medium rate of projection gross density level within the catchment area has been established.

Table 27: Gross Density of Population Within the Catchment Area of Nachole Upazila Shahar

	1985	1990	1995	2000	2005
Total Area (Acre)	12327	12327	12327	12327	12327
Total Population	14805	17835	20830	24202	28126
Density per acre	1.20	1.45	1.69	1.96	2.28

In the year 2005 gross density of population in the catchment area of Nachole Upazila Shahar is expected to be around 228 persons per sq.Km.

The average size of household in the study area is found to be 6.26. It is expected that due to urbanization

household size will decrease over the years. The following table gives the assumed household size and resultant number of households during 1985-2005 year period.

Table 28: Household Size and Number of Household in the Catchment Area 1985-2005

	1985	1990	1995	2000	2005
Total Population	14850	17835	20830	24202	28126
Household Size	6.25	6.15	6.00	5.85	5.70
Household Number	2376	2900	3471	4137	4934

It is expected that in the year 2005, the catchment area of Nachole Upazila Shahar will have around 4,934 household.

4.1.2 Upazila Shahar

Forecasting future population for upazila shahar needs careful consideration due to the fact that one of the main objective of upazila program is to hold city-wide migrants at the shahar. If economic activity is really geared up at upazila centres, employment opportunities will be created, which will lead to a considerable segment of future population increase as migrants from both within and neighbouring upazilas. Since it is difficult to visualize the extent of economic activities at the centre it leads to the difficulty of estimating the migrant accurately.

The population of the area tentatively identified as the future shahar area of Nachole Upazila was found to be 1759, 3200 and 5662 in the census years 1961, 1974 and 1981 respectively. Inter-census growth rates were 4.7 percent (1961-1974), 6.0 percent (1961-81) and 8.5 (1974-81) respectively. On the basis of above mentioned past growth rates and also considering that migrant will be a major component of the future population growth; high, medium and low growth rates of Nachole Upazila Shahar are assumed to be 4.25, 3.00 and 2.00 percent respectively. The base population for all three forecasts is considered to be 5662 in 1981.

Table 29 :Population Projections for Nachole Upazila Shahar (1981 - 2005)

Year	Projections		
	High (GR: 4.25)	Medium (GR: 3.50)	Low (GR: 2.00)
1981	5662	5620	5620
1985	6687	6497	6128
1990	8234	7716	6766
1995	10139	9164	7470
2000	12485	10855	8248
2005	15374	12927	9100

Abbreviation : GR = Growth Rate.

It is expected that the population growth for all three projection will be higher due to increase population flow at the upazila shahar because of increased economic activities. But an average growth rate is taken for the sake of simplicity

Considering medium rate of growth gross density of population for the shahar area is calculated and presented in the following table.

Table 30: Gross Density of Population in Nachole Upazila Shahar

	1985	1990	1995	2000	2005
Total Area (Acre)	2034	2034	2034	2034	2034
Total Population	6497	7716	9164	10855	12927
Density per Acre	3.19	3.79	4.51	5.35	6.36

The future shahar area of Nachole Upazila is expected to have an average population density of 1563 persons per sq.Km in the year 2005.

The number of household in the planning area was found to be 2099 with an average household size of 6.26 persons in 1981. For the reasons mentioned earlier household size is expected to be reduced over time. Considering that household numbers in the planning area is calculated and presented in the following table.

Table 31: Forecast of Household Size and Resultant Number of Household in the Study Area

	1981	1985	1990	1995	2000	2005
Population (Medium Projection)	13133	14850	17835	20830	24202	28126
Household Size	6.26	6.00	5.75	5.50	5.25	5.00
Household Number	2099	2475	3101	3787	4609	5625

It is expected that Nachole Upazila Shahar will have about 45625 households in the year 2005.

4.1.3 Aspects of Migration

For forecasting future in any urban area it is necessary to give emphasis on the realistic picture of migration situation. But here it is a very difficult to get any real picture of estimating the number of migrants in the Nachole Upazila as there is hardly any data regarding migration from the secondary sources. But in Nachole Upazila headquarter there is an influence of migrant population from neighboring country. After partition of India a large number of migrants were settled in the upazila headquarter. But now-a-days migration to the upazila will be far lower than what it was 20 or 30 years before. However it is reasonable to assume that immigration to the area will increase in course of time with the increase of different urban investment in the area.

In that situation it is reasonable to consider 10 percent migrant population in estimating future population in the shahar area.

Table 32: Estimated Number of Migrants in Nachole Upazila Shahar

	1990	1995	2000	2005
Project Population (Medium)	7716	9164	10885	12927
No. of Migrants	771	208	242	281

This migrant effect has already been considered in the growth rates for all three projections.

4.2 Labour Force and Employment

Employment and labour force are inter-related at any stage of economic development. Since a co-relation factor is not available for any areas of Bangladesh, an assumption is made based on the existing trend.

In Nachole Upazila 24.22 percent of the total population were engaged in earning activities. But in our analysis here we have assumed 35.00 percent of total population will constitute the Labour force for the catchment area with the consideration that due to added investment and economic activities participation in earning activities will rise.

Table 33: Forecast Labor Force for the Catchment Area of Nachole Upazila Shahar

	1990	1995	2000	2005
Total Population	17835	20830	24202	28126
Labour Force(35%)	6242	7290	8470	9488

For the upazila shahar the situation is expected to be little bit different. Apart from the resident labour force (RLF) within the shahar area, there will be commuter labour force from the surrounding areas. Commuter labour force is taken to be another 10 percent of the resident labour force.

Table 34: Estimated Labour Force of Nachole Upazila Shahar Area

	1990	1995	2000	2005
Resident Population	7716	9164	10885	12927
Resident Labour Force(35%)	2700	3207	3809	4524
Commuter Labour Force (10% of RLF)	270	320	380	452
Total Labour Force in the Shahar Area	2970	3527	4189	4976

4.3 Land Requirements and Provision Standards

Based on the identified service population and provision standards, provided by the TOR, land requirements for different services and facilities are estimated. The identified catchment area population and shahar resident of Nachole Upazila Shahar is 28126 and 12927 respectively. In the case of housing we shall only consider shahar resident population but for all other services catchment area population has to be considered. But the consultant feels that design population have to be different for different services depending on the nature, type, level of provision etc. The shahar population is designated as "A" and catchment population as "B" and the land requirement estimates as per TOR are shown in the table below.

Table 35: Summary of Existing Landuse and Future Requirement for Nachole Upazila Shahar

Item of Landuse	Provision Standard (Acre/Pop)	Design Pop.	Existing Area in Acre (Ha)	Land Requirement Acre (Ha)
Commerce / Industry	1.5/1000	A+B	8.8 (3.56) 4.6 (1.95)	62.0 (25.10)
Education			12.45 (5.04)	
Primary School	2/5000	A	1.85 (0.75)	5.2 (2.10)
Secondary School	5/20000	A+1/3 B	3.75 (1.52)	5.6 (2.26)
College	5/20000	A+B	4.60 (1.86)	10.26(4.15)
Health			9.45 (3.82)	
Dispensary, Maternity				
Childcare Clinic	1/5000	A+1/3 B		4.5 (1.82)
Health Centre / Hospital	5/20000	A+B	9.00 (3.64)	10.26(4.15)
Administration/ Judiciary	12/Upazila	Upazila Pop.	17.45(7.06)	12.00(4.86)
Recreation			0.80(0.32)	
Park/Open Space	1/1000	A+1/3 B		22.30(9.03)
Cinema/Closed Space	0.5/20000	A+B		1.03(0.42)
Sports Stadium	3/20000	A+B		6.20(2.5)
Socio-Cultural			2.08(0.84)	
Community Centre	1/20000	A+B		2.05(0.83)
Religious Facility	0.5/5000	A+1/4 B	1.26(0.5)	2.00(0.81)
Grave Yard/Cemetary	5/20000	A	0.80(0.33)	3.23(1.30)

Item of Landuse	Provision Standard (Acre/Pop)	Design Pop.	Existing Area in Acre (Ha)	Land Requirement Acre (Ha)
Urban Services			26.82(10.86)	
Post Office	0.5/20000	A+B	2.25(0.91)	1.03(0.41)
Telephone Exchange	0.5/20000	A+B	2.25(0.91)	1.03(0.41)
Police Station	2/20000	A+B	5.00(2.02)	4.11(1.66)
Bus/Railway Station/ Ghat	1/20000	A+B	15.25(6.17)	2.05(0.83)
Dakbanglow/Godown			4.32(1.75)	
Road	5-10% of Builtup area		55.12(22.31)	
Residential	1/100	A	244.75(99.09)	130.00(52.63)
Urban Deffered	10% of Build up area			
Reserve			111.00(44.94)	

** Source: Landuse Survey, 1988.

Chapter

5

Landuse Plan

In the previous four chapters existing situation and future requirements for the Nachole Upazila Shahar has been evaluated and presented. This chapter consists of a discussion on the approach, concept and planning principles for the landuse plan and a detail description of the Landuse plan itself.

5.1 Approach, Concept and Planning Principles

At this instance it is better to understand the purpose of the landuse plan an upazila shahar which is merely a broad guide plan in order to control the development through an appropriate locational and functional arrangement of services and facilities so that efforts of all the concerned agencies can be guided to a common goal. Once the main criteria and basic guidelines for development schemes are set individual area development schemes have to be detailed according to the guiding principles of the plan and development phases.

For the preparation of landuse plan for Nachole upazila centre some of the factors were found worth considering which are discussed below.

5.1.1 General Considerations

Due to the Upazila programme of the present government allotment of development fund for an upazila centre is much more than what it was before. But it is still quite insignificant for the kind of development envisaged. So it is important that development cost have to be absolute reasonable minimum.

Keeping in mind the cost of development, it is decided that existing development will be kept undisturbed as far as practicable. The future development proposals are visualized as some sort of a fabric to unit the previous haphazard development in to a meaningful whole.

It is also reasonable to consider, and act accordingly, the existing trend of physical development, if they are not found altogether contradictory to planning norms. Any suggestion altogether reverse to the existing one might be unacceptable to the target population and costly to implement.

Bangladesh is an agrarian society and with a big population in a small area, land is the most scarce resource. And with per capita agricultural land holding of only 0.3 acres, land/man ratio is the lowest in the world. As if it is not enough, the situation is rapidly deteriorating with the fast increase of population. In such a situation it goes beyond saying that converting agriland for any other use needs absolute care. Dictated by this precarious situation, existing built-up areas are proposed for maximum possible utilization first and then taking some agricultural land if necessary.

The TOR provided by UDD for the preparation of upazila landuse plans is quite general. But the consultant has carefully examined the upazila shahar so as to identify its growth potentials, prospects and limitations.

5.1.2 Specific Considerations

Apart from the general considerations discussed above, some of the specific consideration for the preparation of landuse plan for Nachole Upazila Shahar are discussed below.

- Except the triangular space bounded by three major roads, rest of the present development in Nachole Upazila Shahar is ribbon like and along the roads that goes towards the railway station and towards Gomestapur Upazila from Nawabgonj - Nitpur - Sapahar road. To offset this kind of development vacant land in-between the settlement, which are most prone to future development, are brought under new proposals. This will lead to a somewhat, if not perfectly, compact sort of development.

- Proposals are based on the growth potentials limitations of the shahar, expected future population, services requirement etc.

- The road network is curved out of the existing one and it is used to form the appropriate skeleton for the future shahar.

- It is also attempted to have appropriate zoning of various broad landuse areas, as much as possible, with the major roads acting as separators. Conventional methods (like compatible /incompatible association, locational criteria of specific use etc.) of landuse planning have been kept in mind and utilised whenever/if possible.

There is a possibility that with the new proposals for development adjacent agricultural land might not be required during the plan period. So a "ring of reserve" land are proposed around the proposed compact built-up area to counter that kind tendency.

Considering the regional communication Nawabgonj / Rajshahai - Nitpur / Sapahar road is going to have a lot of traffic. As such possibility of physical development on both side of this road is high.

5.2 Plan Description

The landuse plan that has been prepared, taking into account the considerations mentioned above, is expected to accommodate a resident population size of 12927 and will occupy an area of about 1126 acres giving rise to a gross density of 2810 persons per sq.km. In addition to that it will serve an estimated 28126 population in the catchment area. It will provide residential accommodation to the shahar population and all other facilities to both shahar and catchment area population. There is scope for other minor functions and services, apart from the mentioned in the TOR, so as to meet most of the needs of the population. Proper spatial organization of all these activities and functions is attempted, so as to achieve desired healthy, livable environment. Landuses proposed for different major categories are discussed in the following paragraphs and summary of the proposed landuses are presented in table 30.

5.2.1 Commerce & Industry

Commerce

There are about 8.8 acres of land under various commercial use including bazar, shops, banks etc. While there intensity of use needs improvement a farther three blocks of land are proposed for commercial use. One is located on the opposite side of proposed stadium, one on the other side of proposed bus station and the last one is on the right hand side of the road that goes towards Gomestapur. All these land are expected to contain service shops, workshops, whole sale, retail market etc. Total area covered by commercial use is about 13.75 acres.

Industry

Eventhough there is no large industry in the study area existing rice mill occupy about 4.6 acres. It is also difficult to forsee any kind of large scale industrial development in near

future. But the government has the policy to encourage small and cottage type of industry. As such an area of about 18.5 acres are proposed to set up an small scale industrial estate with the exception that local people will come up to take advantage of government efforts. The proposed land is located at the northern part of the proposed built-up area (above police station) and will not effect rest of the built-up area with noise, smoke etc. While any new industry have to be established here, existing ones should be encouraged to move to this area.

5.2.2 Education

Existing college compound have enough unutilised land to take care of the future expansion necessities. Proposals for improvement of educational facilities include:

- Expansion of boy's high school area to accommodate a play field.
- Expansion of the primary school near the boy's high school.
- Two new primary schools one near the proposed community centre, another in Muradpur mouza.
- Two vocational training institution one for boys and another for girls along with the existing girls high school.

Total area covered by all the educational institutions is about 24.00 acres.

5.2.3 Health

Existing Upazila complex has enough land to meet the future expansion demand in the plan period and beyond. Some of the new health facilities proposed for the area are:

- Maternity, childcare and family planning clinic in Muradpur mouza.
- One small clinic near the railway station.

Total area covered by all the health facility institutions is about 12.00 acre.

5.2.4 Administrative/Judiciary

Newly constructed upazila complex contain all the administrative facilities. No new areas are proposed in this category. The semi government organizations scattered all over the study area will keep on functioning except the public health office near the inter section of three major roads. This establishment have to be moved to upazila complex and the area is designated for post office and T&T establishment.

5.2.5 Recreation

There is hardly any recreational facility in the study area. As such a number of important ones are proposed .

- A 17.50 acre park opposite the upazila complex. It is incorporated with the biggest water tank in the area so as to give a cumulative advantage. A few households in between the road and the proposed park has to be resettled somewhere else with full compensation, so as to provide enough access to the park. A Shahid Minar is also proposed in the park so that national days like "Ekushe February", "Pahela Baishak" etc. can be celebrated properly.
- A sports stadium beside the 40'-00" wide road forwards the railway station. It will conveniently hold a standard football field with spectator galleries.
- Two new cinema halls one near the bus station another near the railway station.

Total area covered by recreational facilities are about 26.30 acres.

5.2.6 Socio-Cultural

Important provisions proposed in this category includes:

- Community centre cum public library at the north west corner of the proposed built-up area along one of the roads.
- A central mosque in the existing bazar.
- Extension of the existing graveyards to take care of the future requirements.

Total area covered by socio-cultural facilities is about 8.78 acres.

5.2.7 Urban Service

Most of the existing urban services like railway station, police station, dak-banglo, godown etc, are kept undisturbed. New facilities proposed are:

- A bus station on the proposed 60'-00" wide road near the police station.
- A Patrol pump on the other side of the bus station.
- Post office and T&T establishment on the existing public health premises.

Total area covered by urban services is about 30.12 acres.

5.2.8 Roads

The most important roads of the network is two 60'-00" wide roads (one that comes from Nawabgonj-Rajshahi and proceeds towards Nitpur-Sapahar and the other one that goes towards Gomestapur from the centre) and the 40'-00" wide roads (one that passes through the built-up area and the other one along the upazila complex). The major 60'-00" wide roads are expected to link the shahar with rest of the region and beyond which seems an urgent necessity. Rest of the roads are 24'-00" wide terriaries. Only important ones of the last type are identified. When detail plans for each specific zone will be prepared a good number of tertiaries will be identified.

The total area covered by the road network is about 79.50 acres.

5.2.9 Residential

The study area contains about 245 acres of land under residential use. But their intensity of use is far from the kind of density required by the TOR. So it is needless to mention that all the existing homestead areas are proposed for intensification rather than physical expansion. The homestead areas beyond the proposed built-up area, but within the study area, will also keep on functioning, but their physical expansion has to be restricted.

Considering the need at the end of plan period and also the kind of density practicable, a small amount of land are also proposed for residential purpose. But they will be kept undisturbed in the initial years.

Total area under residential use is about 285 acres. It includes a 12 acres government housing estate situated in between the proposed stadium and park. It will also rehabilitate the evicted households due to public acquisition.

5.2.10 Urban Deferred

Land requirements proposed for Nachole Upazila Shahar are based on the forecast of future population, which inturn depend on a lot of assumption as there are considerable data gap form secondary sources. There is a possibility that land requirements proposed might be different form what is actually needed. To accommodate that kind of fluctuation urban deferred land are identified and properly marked on the plan. Current use of these land must continue, as long as they are not actually needed.

5.2.11 Reserves

One of the interesting feature of the study area is the presence of a large number of ponds. Some of them are as big as 5/6 acres with an average size of 1 to 2 acres. All these ponds are proposed to be reserved from any kind of physical development. But they have to be maintained and used for fish farming and other productive uses.

Apart from them the future built-up area includes a huge amount of agricultural land as "reserve". Infact the reserve land forms the outer ring of the proposed built-up area. The intention is to contain the actual built-up portion within its specified limit.

Table 36: Summary of Existing and Proposed Landuse for Nachole Upazila Shahar

Landuse	Existing* Acre (Ha)	Requirement According to the TOR** Acre (Ha)	Proposed	
			Acre (Ha)	%
1. <u>Commerce & Industry</u>	13.4 (5.43)	62.00(25.10)	36.85(14.92)	3.28
A. Commerce			13.75	
B. Industry			23.10	
2. <u>Education</u>	12.45(5.04)	21.06(8.5)	24.00(9.72)	2.14
A. Primary School			5.25	
B. Secondary School			4.75	
C. College			5.25	
D. Vocational Training			5.00	
E. Madrasha/Maktab			3.75	
3. <u>Health</u>	9.45(3.83)	14.76(5.98)	12.00(4.86)	1.07
A. Cleanic			0.75	
B. Maternity, Childcare, Family Planning Centre			1.25	
C. Upazila Health Complex			9.00	
D. Vatenary Hospital			1.00	
4. <u>Administrative/</u>				
<u>Judiciary</u>	17.45(7.06)	12.00(4.86)	17.45(7.06)	1.55
A. Government			13.00	
B. Semi-Govt., Autonomus			4.45	
5. <u>Recreation</u>	0.80(0.32)	29.53(11.96)	26.30(10.73)	2.34
A. Parks/Open Space			17.50	
B. Play Field			2.25	
C. Cenima/Closed Space			1.80	
D. Sports Stadium			4.75	
6. <u>Socio-cultural</u>	2.08(0.84)	7.28(2.95)	8.78(3.56)	0.78
A. Community Centre cum Public Library			1.25	
B. Religious Facilities			2.25	
C. Grave Yeard			5.28	
7. <u>Urban Services</u>	26.82(10.86)	8.22(3.33)	30.12(12.20)	2.68
A. Post Office			0.85	
B. Telephone & Telegraph			0.85	
C. Police Station			5.00	
D. Bus Station			3.00	
E. Petrol Pump			0.85	
F. Railway Station			15.25	
G. Dak Banglow, Hotel			1.50	
H. Godown			2.82	
8. <u>Road</u>	25.12(22.32)		79.50(32.19)	7.06
9. <u>Residential</u>	244.75(99.10)	130.00(52.63)	285.50(115.58)	25.30
10. <u>Urban Deffered</u>			113.00(45.75)	10.03
11. <u>Reserve</u>			493.00(199.60)	43.78
Total			1126 (455.87)	100.00

Note: * Landuse Survey 1988.

** Detail in Chapter 4.

Chapter

6

Programming and Implementation

Some of the programming and implementation issues of the landuse plan are discussed in this chapter. Development of such a huge number of upazila centres throughout Bangladesh is rather a monumental task for everybody concerned. Availability and mobilization of financial resources, adequate number of trained manpower and appropriate organizations structure to carry out the work are some of the major problems. To share the burden it is reasonable to expect that each individual consultant should recognize these practical limitations, give due consideration during plan preparation and finally should come up with appropriate measures to implement the proposals.

6.1 Priority Actions and Cost Implication

6.1.1 Priority Actions

Even if an individual centre is considered, total amount of work that has to be done is really huge. It is not possible to list them down and priorities. But some of the projects which need early action are listed below.

- All the land proposed for public uses should be earmarked and any kind of further development by private sector, should be prohibited. But these land must continue their present use as long as they are not physically acquired and developed.

- Pre-condition for development in any designated zone is the detail layout of that area. This is to ensure that the area is put into its fullest capacity.

- The main thoroughfares need early development. They will not only shape the future township the way it is desired, but also gear up private sector activities.

o Development of commercial areas (markets, shops, bazars, etc.) should get priority as they might lead to earning opportunities for the Upazila Parishad. But pre-condition for their development is the market feasibility study.

o Designated residential areas, within the proposed build-up area, will be developed gradually when the demand for such development is felt, following the specified priorities of the blocks. The consultant likes to suggest a different approach in developing the residential areas. The existing practice in this country is the acquisition of land first by Urban development agency (in this case Upazila Parishad) and finally selling them at cost prices. Instead of doing that, it is better to develop these areas in collaboration with present land owners. This attitude will reduce the problems of public acquisition and compensation, resettlement problem of evicted land owners etc. One of the most widely regarded technique of such approach, "Land Pooling and Readjustment", is worth mentioning here.

o The reserve land (waterbodies, tanks, canals) deserve some considerations also. Instead of leaving them the way they are, they should be developed (excavation, linked, landscaping) so that they can be used for drainage, pisciculture and recreational purpose.

6.1.2 Cost Implication

Most uneasy component of upazila development program is the magnitude of financial resources needed. It really troubles the imagination whether it will be possible to finance urban-type development even though the consultant has tried utmost to minimize the cost.

It is also very difficult to pinpoint the exact amount of financial resource needed for Nachole upazila centre from a rather conceptual landuse plan. Most important component not available at this stage is the percent of covered area in each type of landuse. But it is needless to mention that alternate cost effective development approaches has to be evaluated and utilized. One important component of physical development at upazila level is the cost of earth filling. Upazila Parishad can evaluate the possibility of dyke and pump system for big parcel of land.

6.2 Phasing and Urban Deferred

The year 2005 is tentatively designated as the horizon year for Nachole Upazila Shahar landuse plan. Considering present year, it has about 18 years plan period in which development proposals have to be implemented in different phases. But the

plan period and consequently the target year should not be considered to strictly as the plan is a broad guideline to control and guide the self-generated development activities. Development proposals for each phase should be mainly on the basis of previous phase's performance, future prospect and guidelines from the plan.

Tentatively the plan period can be divided into four phases. Development activities can be quantified (in terms of percentage) for each phase to give some indication. The guideline for such quantification is the population projection and project priorities.

Table 37 :Development Activities in different phases for Nachole Upazila Shahar

S e c t o r	P h a s e s				T o t a l
	1988-90	1990-95	1995-2000	2000-05	
Commerce	20	40	30	10	100
Industry	-	20	30	50	100
Education	30	50	15	05	100
Health	30	50	20	-	100
Administration	50	40	10	-	100
Recreation	30	30	25	15	100
Socio-cultural	25	35	25	15	100
Urban services	30	40	20	10	100
Roads	30	40	20	10	100
Residential	20	40	20	10	100

Note : All figures indicates percentage

The present landuse plan is prepared on the basis of medium projection of population. Due to various unforeseen circumstances, it might so happen that a little bit of more land is required for different uses. To tackle that kind of situation. "Urban deffered" land are identified and properly marked on the plan. They are located in such a manner that even if they are not required at the end of the plan period, there would not be any vacant lot or "without purpose" land within the proposed built-up area.

6.3 Development Control

Some of the existing situation deserves worth mentioning before discussing about the possible control mechanism.

• "The Local Government (Upazila Parishad and Upazila Administrative Re-organization) Ordinance-1983" does not provide statutory backing to the upazila landuse plans and any provision to take preventive measures/actions against contrary, unauthorized development both by private and public sector.

• Upazilas which are under the landuse plan preparation program are beyond the administrative boundaries of existing metropolitan and municipal towns. As such there does not exist any development control measure.

At such a situation, most general suggestion that can be made is the formulation and adoption of appropriate development control mechanism for the upazila centres. Regulations regarding building type and height, set back, density, plot coverage, preservation of historic sites and various form of taxes should be incorporated in such a mechanism. It would not be wise to suggest existing urban regulations for the upazila centres. A set of more appropriate regulations should be formulated considering the socio-economic situation and enforcement problems for the upazila centres.

Some specific suggestions could be made regarding development control of upazila centres.

• The proposed build-up area could be designated as "Development promotion area" where all kinds of development will be preferred and given incentive as long as they are not contrary to the proposed landuse plan. And rest of the study area could be regarded as "Development Control Area" where premature urban development has to be restricted.

• Within the development promotion area all development are subjected to control by regulation and all the measures should be enforceable by law.

• Assuming that all public sector activities would be in confirmation with the proposals made in the landuse plan, they would only be subject to normal approval from Upazila Parishad.

Development control mechanism should not only take care of regulations but also manpower at upazila level and above. Following suggestions are found feasible.

• There should be at least one person in the Upazila Parishad, who understands the preliminaries of development control like understanding the plan, evaluating proposals, field check during execution etc. As the Upazila Engineer is partially qualified in this respect he/she should be given one or two months intensive training by UDD to make up the rest.

- UDD should extend its establishment upto, at first, old district level and then for two or three districts to provide technical advice to Upazila Parishad.

6.4 Monitoring and Review

The proposals made for the physical development and improvement of Nachole Upazila Shahar are rather guidelines than fixed set of rules. The proposals are based partly on the basis of present governments development efforts at upazila level and greatly on the expectation that private sector activities will be geared up due to government efforts. As the private sector activities can not be forecasted accurately, it generates certain amount of uncertainty. This factors alone makes it necessary to monitor the plan closely. And a periodical review becomes inevitable.

So it is recommended that the progress in the implementation of the proposed plan or any change or deviation should be noted and marked on the plan by the Upazila Parishad. The Upazila Parishad should seek advice, consultation from UDD in case of difficulty in the implementation of the plan.

It would have been wise to say that on the basis of yearly monitoring report, the landuse plan should be reviewed in every five year. But review, revision, updating is as cumbersome and time-consuming process as preparing new proposals. Since there is acute shortage of qualified planners to do so, it is suggested that review, revision will be done after 10 years, i.e. in the year 1997.

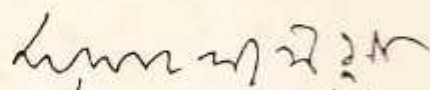
APPENDIX A	APPROVAL FROM THE UPAZILA PARISHAD
APPENDIX B	SAMPLE QUESTIONNAIRE FOR SOCIO ECONOMIC SURVEY
APPENDIX C	FORMAT FOR THE COLLECTION OF INFORMATION FOR DETERMINING HIERARCHY OF SETTLEMENTS
APPENDIX D	SAMPLE QUESTIONNAIRE FOR DETERMINING CATCHMENT AREA

APPENDIX A

Letter of Approval From The Upazila Parishad Nachole.

The Planner of the Consultant Hoq Associates discussed with me/us about the proposed landuse plan for Nachole Upazila Shahar of Nawabganj district.

We have gone through different aspects of the proposed plan and the accompanied report and found them to be satisfactory and feasible for future development of the area.


27/07/88

Secretary - Nachole Upazila Parishad
Nawabganj District

APPENDIX B

Questionnaire No: _____

Landuse Plan for Nachole Upazila Shahar Socio Economic Survey -1988 Hoq Associates

Interviewers Name: _____
Date: _____

1. General Information

Name: _____, Mouza: _____
Union: _____, CS No. of Homestead: _____

2. Information About the Family

2.1 Type: _____ Nuclear _____ Joint.

2.2 Family Members:

No.	Relationship with the Head of the family	Sex	Age	Education (1)	Occupation (2)	
		Male Female			Primary	Secondary
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

Note: Head of the Family will be at Serial 1. and Respondent at Serial 2. If both are same leave Serial 1. blank.

(1.) A = Illiterate B = Primary C = Higher Secondary
D = Graduate F = Post Graduate

(2.) A = Service B = Business C = Professional
(Doctor, Lawyer, Tailor)
D1 = Agri-labour D2 = Non-Agri labour
D3 = Industrial labour

3. Income Expenditure Pattern of the Family

3.1 No. of Earning members in the family _____

3.2 Monthly Family Income from different heads

Source	Monthly Income (Taka.)
Agriculture	
Poultry	
Cattle and Dairy	
Pisciculture	
Business	
Service	
Profession related	
(Tailor, Carpenter etc.)	
Other	

3.3 Monthly Family Expenditure in different heads

Heads	Monthly Expenditure (Tk.)
Food	
Clothing	
Health Care	
Education of children	
Maintenance of dwelling	
Others	

4. Information Regarding Migration

4.1 Are you a permanent resident of this area?

_____ Yes. _____ No.
(If YES go to Question 4.5.)

4.2 How many years you have settled here? _____

4.3 From where you have migrated:

_____ Another location
_____ of this Upazila.
_____ Another Zila.

_____ Another Upazila.
_____ Another Country.

4.4 Reasons: _____

4.5 Did anyone from the family has permanently settled somewhere else?

_____ Yes. _____ No.
(If NO go to Question No 5.)

4.6 Since how long He/She has gone? _____ Years.

4.7 Where has He/She settled now?

_____ Another location _____ Another Upazila.
of this Upazila.
_____ Another Zila. _____ Another Country.

4.8 Reasons: _____

5. Information About Land Ownership

5.1 Total amount of land possessed by the family

Homestead _____ Acre.
Agricultural Land _____ Acre.
Other (Pond, Orchards etc.) _____ Acre.

5.2 What was the use of present homestead land 5 years before?

_____ Same. _____ Other Use.
(If same go to Question No. 5.)

5.3 What was it if other use.

_____ Paddy field. _____ Low lying fallow land.
_____ Orchard. _____ Others.

6. Informations About Homestead Related Facilities

6.1 Total number of dwelling Units.

_____ One roomed one unit. _____ Two/Three roomed one unit.
_____ One several unit. _____ Several roomed 2/3 unit.

6.2 Construction aspect of the dwelling unit

Material component of the unit	Earth	Bamboo	Wood	C.I. Sheet	leaves Straw Hay	Brick Cement Sand	Others
Roof							
Wall							
Floor							
Door & Windows							

6.3 Sanitation

- | | |
|---|--|
| <input type="checkbox"/> Exclusive for the family | <input type="checkbox"/> Shared with other families. |
| <input type="checkbox"/> No definite Arrangements | <input type="checkbox"/> Enclosed form all sides. |
| <input type="checkbox"/> Enclosed Ditch | <input type="checkbox"/> Sanitary Latrine. |

6.4 Source of Drinking Water.

- | | | |
|-------------------------------|------------------------------------|-------------------------------|
| <input type="checkbox"/> Tap | <input type="checkbox"/> Tube Well | <input type="checkbox"/> Well |
| <input type="checkbox"/> Pond | <input type="checkbox"/> Others. | |

6.5 Source of Light.

- | | | |
|--------------------------------------|------------------------------------|----------------------------------|
| <input type="checkbox"/> Electricity | <input type="checkbox"/> Hurricane | <input type="checkbox"/> Hassock |
| <input type="checkbox"/> Lamp | <input type="checkbox"/> Others. | |

(Please thank the respondent for his time and co-operation.)

APPENDIX D

Questionnaire No: _____

Landuse Plan for Nachole Upazila Shahar
Survey for Determination of Catchment Area, 1988
Hoq Associates.

Investigators Name: _____
Date: _____ Location: _____

1. Name: _____
2. Homestead Located in _____ Mouza, _____ Union
3. Homestead is _____ Km. away from the place of discussion.
4. Transportation Mode:
_____ Walking. _____ Cycle/Rickshaw.
_____ Bullock Cart. _____ Bus.
_____ Autorickshaw/Car. _____ Other.
5. Purpose of Visit
_____ Business. _____ Service. _____ Education.
_____ Administration. _____ Recreation. _____ Shopping.
_____ Health. _____ Others.
5. Frequency of Visit.
_____ Several times daily. _____ At least once in a day.
_____ At least once in a week. _____ At least once in a Month.
7. Do you need to travel to Zila or other Upazila Centers.
_____ Yes. _____ No.
(If NO go to question 10.)
8. Purpose of visit. _____
9. How many times in a month you visit other centers. _____
10. Besides Upazila Center, do you go to other local bazar.
_____ Yes. _____ No.
(If NO conclude the interview.)
11. Reasons for going to the bazar. _____

(Please thank the respondent for his time and co-operation).